

HEALTH CARE

The State of the Industry

Spring 2008



Final Report

**The Industrial College of the Armed Forces
National Defense University
Fort McNair, Washington, D.C. 20319-5062**

Report Documentation Page				Form Approved OMB No. 0704-0188	
Public reporting burden for the collection of information is estimated to average 1 hour per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington Headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington VA 22202-4302. Respondents should be aware that notwithstanding any other provision of law, no person shall be subject to a penalty for failing to comply with a collection of information if it does not display a currently valid OMB control number.					
1. REPORT DATE 2008		2. REPORT TYPE		3. DATES COVERED 00-00-2008 to 00-00-2008	
4. TITLE AND SUBTITLE Health Care. The State of the Industry. Spring 2008				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S)				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) National Defense University, The Industrial College of the Armed Forces, Washington, DC, 20319				8. PERFORMING ORGANIZATION REPORT NUMBER	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)				10. SPONSOR/MONITOR'S ACRONYM(S)	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S)	
12. DISTRIBUTION/AVAILABILITY STATEMENT Approved for public release; distribution unlimited					
13. SUPPLEMENTARY NOTES					
14. ABSTRACT					
15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT Same as Report (SAR)	18. NUMBER OF PAGES 35	19a. NAME OF RESPONSIBLE PERSON
a. REPORT unclassified	b. ABSTRACT unclassified	c. THIS PAGE unclassified			



ICAF

HEALTH CARE 2008

ABSTRACT: With up to forty-seven million Americans without health insurance at any given point during the year, the debate over the adequacy of the US health care system has taken on renewed vigor – including attention in this year’s presidential debates. Health care spending in the United States is increasing at an unsustainable rate. In 2007, the country spent over \$2.3 trillion dollars on health care – a number that is expected to increase to \$4.2 trillion within the next decade. The disparities in access to healthcare, the uneven quality of the healthcare delivered, and rising costs of health care in the US demand that this nation do better. At the heart of the debate lie three competing and interdependent objectives: improved quality (outcomes); assured access; and controlled costs. This paper proposes several policy measures for addressing this triad of objectives in order to meet current and future national security needs from the health care perspective.

Brig Gen Mohammed Abbadi, Jordanian Air Force

Ms. Carolyn Alsup, U. S. Dept. of State

Lt Col Carolyn Benyshek

Ms. Celestine Booth, DAF

Ms. Sharon Brown, DA

Mr. Fernando Cossich, USAID

COL Juan Cuadrado, USA

COL Kenneth Dyer, USA

Lt Col Cathy Haverstock, USAFR

CAPT Bradley Margeson, USN

Col Joanne McPherson, USAF

LtCol Gregory Monk, USMC

Ms. Indra Niles, DAF

Mr. Charles Rogers, FEMA

Ms. Dawn Rosarius, DA

Mr. Larry Turner, DA

COL Dorene Hurt, USA

Dr. William Knowlton, DOD

Dr. Robert Book, DOD

PLACES VISITED/BRIEFINGS RECEIVED

Domestic

American College of Traditional Chinese Medicine, San Francisco, CA
Armed Forces Retirement Home, Washington, DC
Armed Forces Medical Intelligence Command, Fort Detrick, MD
Cardinal Health, Dixon, CA
East West Academy of Healing Arts, San Francisco, CA
Food and Drug Administration, Washington, DC
George Washington University Medical Center, Washington, DC
Howard University Hospital, Washington, DC
Institute for Alternative Futures, Alexandria, VA
Johns Hopkins University and Medical Center, Baltimore, MD
Medimmune, Frederick, MD
National Association of Health Underwriters, Arlington, VA
National Council on Aging, Washington, DC
National Institutes of Health, Bethesda, MD
Senate Armed Services and Veterans Affairs Committee Staffs, US Congress, Washington, DC
Siemens Cancer Research and Manufacturing Center, Concord, CA
TRICARE, Office of Assistant Secretary of Defense (Health Affairs), Washington, DC
US Army Medical Research and Materiel Command, Fort Detrick, MD
US Naval Ship Comfort (Hospital Ship), Baltimore, MD
Walter Reed Army Medical Center, Washington, DC

International

British United Provident Association (BUPA), London, England
Chelsea and Westminster Hospital, London, England
US Mission Geneva, Switzerland
World Health Organization (WHO), Geneva, Switzerland
United Nations High Commissioner for Refugees (UNHCR), Geneva, Switzerland
United Nations (UNAIDS), Geneva, Switzerland

INTRODUCTION

Our nation's health care system with its many successes and failures is one of our greatest national security resources. The crescendo of the debate about health care in this country has been rising for two decades. The questions we face with respect to health care are multidimensional and complex:

- How can we control health care expenses? Total United States (US) health expenditures are currently two trillion dollars, or sixteen percent of our gross domestic product (GDP), and projected to increase to four trillion dollars by 2016.¹
- How can we improve the quality of care delivered? On a per capita basis we outspend every other country in the world by far, but the quality of care we deliver is not necessarily better than many other developed countries.²
- How can we improve access to health care? The majority of people in the US access health care through insurance coverage, but in 2006 some forty-seven million Americans lacked health insurance, at some point during the year.³
- How do we address the growing shortage of health care workers? Currently, the shortfall in the US in nurses alone is estimated at over 100,000 and expected to grow to 275,000 by 2010.⁴
- How do we stem the increasing prevalence of preventable chronic diseases? Over 125 million Americans had chronic diseases in 2000 and by 2030 that number is projected to increase by 46 million.⁵
- How do we improve the efficiency of health care administration? A July 2007 survey conducted by the Office of the National Coordinator for Health Information found that only fourteen percent of physicians have minimally functional electronic medical record (EMR) systems.⁶

Many have characterized the failure to address these questions, among others, as a sign that our health care system is in a state of crisis, but the failure may simply reflect the complexity of the industry. Nevertheless, though we may not have reached the crisis point yet, there is little doubt that our health care system is in need of reform.

This report has been informed by presentations from representatives of every major sector of the health care industry, including doctors, hospital administrators, pharmaceutical company officials, medical supply and equipment company managers, government officials, military leaders, and experts in alternative medicine, both at home and abroad. Using costs, access to care, and outcomes of care as a framework, the report incorporates the information gleaned from these presentations into an assessment of the current state of the industry, its near and long-term outlook, the role our government plays in the industry, how well the industry is positioned to support the National Security Strategy (NSS) of the US, and the global context in which the industry operates. The report concludes with a summary of challenges facing the industry and policy recommendations for ensuring our national security from a health care perspective.

THE INDUSTRY DEFINED

In terms of size, the health care industry is enormous. Health delivery alone accounted for more employment than any other industry segment in the US in 2006 – fourteen million jobs.⁷ There are about 580,000 establishments in the US involved in health care delivery.⁸ The health care industry is not limited, however, to health care delivery. In fact, six sets of actors define the industry: regulators, suppliers, providers, payers, public health service providers, and patients. These sets of actors constitute an intricately entangled web of people, products, services, and regulations.

Regulators

The US Government (USG) plays a key and complicated role in the oversight and delivery of health care to millions of Americans. The US Department Health and Human Services (HHS) is the principal government agent responsible for overseeing most aspects of America's health needs. HHS is comprised of numerous agencies. The Centers for Disease Control and Prevention (CDC), the Food and Drug Administration (FDA), the Center for Medicaid and Medicaid Services (CMS), and the National Institutes of Health (NIH) are among the largest HHS agencies. The CDC keeps a watchful eye on outbreaks of disease at home and abroad and promotes healthy lifestyles.⁹ The FDA ensures the safety and efficacy of the food supply, pharmaceuticals, medical devices, and biological products.¹⁰ CMS sets policy and prices for health care services.¹¹ The NIH conducts, supports, and sets guidelines for medical research.¹²

Private accrediting and certifying organizations are also an important element of health care industry regulation. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) is an independent, not-for-profit organization that accredits and certifies more than 15,000 health care organizations and programs in the United States. Professional boards and societies play a key role in regulating training and performance of health care workers.¹³

Suppliers

Suppliers of medical products, technology, and services play vital roles in the quality of health care delivered and in innovation in health care practices. They include manufacturers of medical supplies and equipment, pharmaceutical manufacturers, health educators, health researchers, and health practice consultants. They offer not just products but provider and patient support services. They are integral to the many processes involved in health care delivery. They also contribute value to the system through provision of administrative services and training of health care workers.

Providers

Health care providers in the US encompass a broad range of occupations and facilities. Among them are physicians, dentists, nurses, pharmacists, medical technicians, radiological technicians, emergency medical technicians, mental health workers, chiropractors, optometrists,

speech therapists, hospitals, clinics, nursing homes, and rehabilitation centers. Providers are generally the most visible segment of the health care industry.¹⁴

Payers

Health care payers are organizations that offer health care insurance products to individuals, employers, and Medicare beneficiaries. Because health care operating rules vary by state, payer organizations tend to work through regional divisions. Payers include insurers, Health Maintenance Organizations (HMOs), and Preferred Provider Organizations (PPOs). CMS administers payments of Medicare, Medicaid, and the State Children's Health Insurance Program (SCHIP) dollars.¹⁵ Most working Americans pay for health care services through employer-sponsored insurance programs. The Department of Defense (DOD) pays for health care for military members, retirees, and their families.

Public Health Service Providers

Activities of the US Public Health Service (PHS) include coordinating with the states to set and implement national health policy and pursue effective intergovernmental relations; generating and upholding cooperative international health-related agreements, policies, and programs; conducting medical and biomedical research; sponsoring and administering programs for the development of health resources; preventing and controlling diseases and alcohol and drug abuse; and enforcing laws to assure the safety and efficacy of drugs and protection against impure and unsafe foods, cosmetics, medical devices, and radiation-producing projects.¹⁶ In addition to the public health system at the federal level, a significant percentage of public health services are provided by state and local health departments throughout the US.

Patients

Having now defined all those contributors to the health care industry, it is imperative to mention the players that truly drive the industry – the patients. The overarching question with regard to US health care is – how healthy is our population? The answer to that question lies in consideration of numerous factors, including our changing demographics, the need for a well-informed patient, and what the industry and the government are doing to accommodate changing patient needs. Demographic change, education, affluence, availability of information via the Internet, patient mobility, direct-to-consumer marketing, patient age, patient activity demands, cost pressures, and physician accountability are converging to present the practitioner with a patient who is more informed and has higher expectations than any prior generation of patients.

OUTLOOK

Health care will grab more and more headlines in the US in the coming months and years. It will be impossible to ignore an industry that is on track to consume forty percent of the GDP of the world's largest economy by the year 2050.

Spending on health care in the US has been growing faster than the economy for many years, representing a challenge not only for the government's two major health insurance programs – Medicare and Medicaid – but also for the private sector. As health care spending consumes a greater and greater share of the nation's economic output in the future, Americans will be faced with increasingly difficult choices between health care and other priorities. If health care expenses continue to rise as expected fewer and fewer Americans will be able to afford health insurance. The aging of our population is inevitable and as the percentage of elderly, who consume the most health care, grows, and retiring baby boomers flood health care facilities, the need for reform of the health care industry will become more acute.

In the face of increasing demand for health care and the growing shortage of health care workers, especially in fields such as nursing, primary care physicians, and x-ray and medical technologists, delivery of quality care will become more difficult. If the vicious cycle of a litigious society winning exorbitant malpractice awards and encouraging more litigiousness is not broken, rising malpractice insurance rates will exacerbate the shortage of health care workers by discouraging young people from pursuing a career in medicine.

Advances in medicine, such as deoxyribonucleic acid (DNA) therapies for detectable hereditary diseases, will result in new treatments that enable people with many diseases to live longer, putting further pressure on demand for health services. Additionally, in the future more patients may turn to alternative medicine and it is possible that alternative therapies will be incorporated into a variety of treatment protocols.

The pressures exerted by all of these trends – rising costs, shortage of workers, greater demand for health care, and medical advances – will ultimately force consumers, payers, and society to base their health care decisions increasingly on a shared definition of value. A greater focus on value will drive more efficient, effective health care delivery. Moreover, the ability to determine value will be aided by the widespread application of information technology (IT) to health care delivery, as well as improved access to the standardized clinical data needed to evaluate quality care, provider performance, and patient outcomes.

Patients of the future will be wired, demanding health information in every way imaginable. They will expect a physician to always be within reach, perhaps through telemedicine or perhaps through a convenient clinic at the mall.¹⁷

US GOVERNMENT ROLES

To many Americans, the most visible role of the government in health care is that of a payer, through the Medicare, Medicaid, and SCHIP. Medicare is the country's health program for people age sixty-five or older, for those under sixty-five with certain disabilities, and for those with end-stage renal disease.¹⁸ Medicare now offers a prescription drug benefit. In contrast to Medicare, which provides the same benefit to elderly citizens regardless of their income, Medicaid is the government's program designed to provide medical care to low-income people. While a federal government program, Medicaid is administered on a cost share basis by each state, thus benefits and eligibility vary by state. Finally, SCHIP, another jointly financed federal program run by the states is available in each state to ensure that children receive the medical care they need.

The federal government also provides health care insurance and/or health care to 1.8 million civilian employees (number excludes postal service),¹⁹ 9 million beneficiaries of the DOD health care program,²⁰ 24 million veterans through the Veteran's Health Administration (VHA),²¹ and over 6,100 commissioned officers in its PHS programs.²² The provision of care through DOD and VHA programs directly impacts our NSS.

Another major role of our government in the health care industry revolves around regulations and regulatory agencies, which provide safety parameters for the delivery of care, but adds administrative costs to the delivery of that care. Some of the more far-reaching regulations and legislation that impact the health care industry are outlined below. The Americans with Disabilities Act ("Is that ADA compliant?") addresses equal opportunity for persons with disabilities in employment settings, in government services, and in public transportation and accommodation.²³ There are also the Employee Retirement Income Security Act, a longstanding federal law that sets minimum standards for most voluntarily established employee pension and health plans in private industry,²⁴ and the much newer Health Insurance Portability and Accountability Act, which directs the government to develop rules for the standardization of electronic health, administrative and financial information, and to implement security standards protecting the confidentiality and integrity of patients' health information.²⁵

In addition to the myriad of regulatory and legislative requirements, the USG has many regulatory agencies that impact health care delivery, some directly and some through oversight of the corporate and business aspects. Directly, the Occupational Safety and Health Administration (OSHA) was established to address workplace hazards, with an emphasis on reducing occupational injuries and illnesses.²⁶

The PHS, a division of HHS, is the largest public health program in the world. It encompasses several HHS agencies, including the FDA and the CDC, and a commissioned corps of public health professionals. The FDA regulates over one trillion dollars worth of products, which account for twenty-five cents of every dollar spent annually by American consumers. The FDA, among other things, is charged with ensuring that our food is safe and that our medicines and medical devices are safe and effective. The FDA seeks to ensure that all of these products are labeled truthfully with the information required for proper use.²⁷ The CDC works with national and international partners to monitor health issues across the globe, to enhance prevention strategies, and to promote health behaviors and environments.²⁸ The 6,100 members of the PHS Commissioned Corps work side-by-side with the 50,000 PHS civil service personnel, including CDC personnel, to promote and protect the public health and advance public health science.²⁹

Finally, through the Internal Revenue Service, the Federal Trade Commission, and the Securities and Exchange Commission, the government exercises a less direct impact on the health industry through their regulatory requirements.

UNITED STATES HEALTH CARE IN 2008

The health care industry in the US is characterized by rapidly rising costs in relation to quality of outcomes and is fraught with moral, ethical, and emotional dilemmas not seen in most other industries.³⁰ The malaise afflicting health care in the US has a wide range of symptoms: a litigious society that causes many physicians to practice "defensive" medicine generating

unnecessary and costly tests and treatments; a payment system that often barely covers costs, discouraging many providers and leading occasionally to fraud; an insurance system that is expensive and inadequate for those who really need it; technological advances out of reach for many because of their high cost; artificial restrictions on the supply of drugs and health care providers; and poorly- or un-informed consumers.

The US health care system, like many systems across the globe, constantly works to balance three objectives: equitable access, high quality and low cost. These are often competing objectives, with the tradeoffs among these goals usually riddled with economic, social, and political implications.

The general consensus among health care industry experts is that a country can reasonably obtain only two of the three components, at the expense of the third.³¹ For example, if a country provides great access to great quality care, expenditures will rise as patients seek more of that care. Whereas, if a country focuses on maintaining reasonable expenditures as it provides quality care, it will maintain that cost control by restricting access to the care demanded. These objectives provide a useful perspective from which to view the US health care industry.

Cost

In 2007, health care spending in the US reached \$2.3 trillion, and is projected to reach \$4.2 trillion by 2016.³² Health care spending is 4.3 times the amount spent on national defense.³³ In 2006, the US spent sixteen percent of its GDP on health care. It is projected that the percentage will reach 20 twenty percent by 2016.³⁴ On a per capita basis, the US devoted \$6,400 per person to health expenditures in 2005.³⁵ These expenditures are rising at an unsustainable rate.

Rising health care expenses rank high on the list of concerns for most Americans.³⁶ As costs increase, some employers are asking employees to shoulder a larger share of their health care expenses. The political response to rising costs tends to focus on the components of care – reimbursement cuts, price controls, and limits on access for patients in public programs.

The DOD offers one of the most generous health benefits systems in the world. Provided through both military treatment facilities and community providers via the TRICARE and TRICARE For Life programs, the DOD health benefits system covers active and retired military beneficiaries. The cost of this system, however, is becoming increasingly difficult for DOD to bear. Nearly ten percent annual health care expense growth³⁷ is squeezing federal discretionary spending (of which DOD is the largest part); and military health care system expenditures have doubled since 2001.³⁸ These rising costs are expected to consume sixty-four billion dollars annually, or a full twelve percent of DOD's budget, by 2015.³⁹ Separately from DOD, VHA operates over 1,400 sites of care and is the nation's largest integrated health care system.⁴⁰ Funding for VHA varies slightly by year, but averages about thirty-six billion dollars.⁴¹

Access

Disparities in access to quality health care exist in the US in terms of effectiveness, patient safety, timeliness, and patient centeredness, as well as barriers to health care and health care utilization. Disparities also persist in the American health care system on the basis of race,

ethnicity, and socioeconomic status.⁴² According to the 2006 National Health Care Disparities report,

Increasing disparities were especially prevalent in chronic disease management.

- *Blacks had 90% more lower extremity amputations for diabetes.*
- *Asians were restrained in nursing homes 46% more often.*
- *American Indians and Alaska Natives were hospitalized from home health care 15% more often.*
- *Hispanics had 63% more pediatric asthma hospitalizations.*
- *Poor people were 37% less likely to receive recommended diabetes care.*⁴³

Other factors also create disparities in access to care among Americans. These include rural health care and nursing workforce shortages and the shifting of health care insurance costs from employers to workers. Rural health care workforce shortages have a negative impact on health care quality not only through reduced health care access, but also in terms of added stress on those who do provide health care for rural populations. Shortages also contribute to higher health care costs by raising basic worker compensation levels to reflect the imbalance between supply and demand and by increasing the use of overtime pay and expensive temporary personnel.⁴⁴

Registered nurses (RNs) constitute the largest single health care profession in the US. In 2000, the national supply of full-time employed RNs was estimated at 1.89 million, while the demand was estimated at 2 million, a shortage of 110,000 or six percent.⁴⁵ By 2020, the shortage is projected to grow to an estimated 340,000. This shortage is not just in hospitals, but also in nursing homes that project a need for sixty-six percent more RNs by 2020.⁴⁶

There is also a growing trend in the US of employers backing away from offering comprehensive health coverage to all employees. The major role of employers in America's health care system is an unusual artifact of history. The practice of employers providing health insurance spread in the wake of World War II limits on wages, which prompted many employers to provide back door pay hikes by offering health insurance to employees.⁴⁷ Today, this relic could become extinct as businesses become less able to offer generous health care packages to their employees. Small businesses have had trouble offering health care insurance for years, but now that health care coverage expenses are cutting into the bottom lines of large businesses as well, the business community is advocating other strategies for insuring American workers. Although many businesses are simply trying to shift the burden of paying for health care to workers, a number of the strategies being advocated could ultimately offer better choices, foster competition, and increase access for American workers.⁴⁸

Outcomes (Quality)

There are numerous factors that impact an individual's health. These include a person's heredity, environment, job, life style, and access to medical services. A middle-class person who jogs every day around their well-lit and safe neighborhood park, eats a healthy diet, has good medical insurance coverage, and accesses preventive care, has a health picture dramatically

different from an obese person living in an inner-city high-crime area, with no health insurance coverage and limited knowledge of the system.

“First, Do No Harm” is part of the oath doctors take to protect their patient’s health, privacy, and life in the practice of medicine. Still, every day in the US medical errors lead to injuries and deaths which are completely preventable. Traditionally, health care providers have performed root cause analysis *after* sentinel events (catastrophic medical errors). This information has then been used to change procedure or practices where necessary to avoid a repeat error. However, with the added focus on safety and error reduction, providers are now recognizing the importance of analyzing information from a prospective point of view to see what could go wrong *before* an adverse event occurs. Examining the entire process and support systems involved in specific events – and not just recurrences of the event – requires rigor and proven methodologies.⁴⁹ The disparity in quality of care documented in this national assessment pose serious threats to the health of the American public. Below are estimates of some preventable complications and deaths annually that could be attributed to poor care:

- People with diabetes received only forty-five percent of the care they needed. For example, less than one-quarter of diabetics had their average blood sugar levels measured regularly. Poor control of blood sugar can lead to kidney failure, blindness, and amputation of limbs.
- Patients with hypertension received less than sixty-five percent of recommended care. Poor blood-pressure control is associated with increased risk for heart disease, stroke, and deaths and contributes to more than 68,000 preventable deaths annually.
- People with coronary-artery disease received sixty-eight percent of recommended care, but just forty-five percent of heart attack patients received beta blockers and sixty-one percent got aspirin – medications that could reduce their risk of death by more than twenty percent.⁵⁰

HEALTH CARE AND THE NATIONAL SECURITY STRATEGY

Health Care as an Instrument of National Power

As a world leader, the US must effectively use all instruments of national power to achieve its NSS objectives. The relevance of soft power on the achievement of our NSS objectives has increased over the last several years, especially in geographical areas where regional powers and non-state actors combine forces to disrupt our traditional NSS interests. Among many soft power tools, the US can use our deployable health care resources available in DOD, the US Agency for International Development (USAID), and other government agencies, to advance US NSS objectives in these areas. It is a legitimate application of soft power to assist countries in need of disaster relief aid or to address unmet critical health care needs in countries that cannot afford and do not have the health care infrastructure to do it themselves. The US deployable health care capabilities, primarily available through DOD and USAID, are a unique capability that support the diplomatic instrument of national power at multiple levels and create lasting results that support US NSS objectives.

Health Care, the National Industrial Base and National Security (Homeland and National Defense)

In the post “9-11,” post “anthrax letters” environment, the US continuously prepares against the threat of biological warfare agents, emerging diseases, and reemerging epidemics. Our national security strategy depends on a functional public health system and robust DOD and Department of Homeland Security bio-defense programs. These systems provide the basis of the national bio-defense system to protect us from pandemics and diseases used as weapons.⁵¹ As we develop new and more effective means to counter biological threats, it is increasingly difficult to differentiate between actions needed in the public health and security sectors.⁵²

The USG and our national industrial base have contributed significantly to our preparation against bio-threats, but they lack effective collaboration. A sustainable and efficient USG-pharmaceutical industry collaboration is essential to address current and future bio-security challenges.⁵³ For example, medical countermeasures are a major component of our health systems and bio-defense plans, and the USG depends on industry to provide them. Medical countermeasures include rapid diagnostics, vaccines, drug therapies and many other medical supplies and equipment to quickly identify the bio-threats and minimize their impact on our population. The national bio-defense approach focuses on the creation and maintenance of a Strategic National Stockpile.⁵⁴ A major problem with this stockpile is the lack of countermeasures for identified bio-threat agents.⁵⁵

Challenges exist with the distribution of medical countermeasures in the case of a pandemic or a bio-attack. Thirteen states still do not have adequate plans to distribute emergency vaccines, antidotes, and medical supplies from the Strategic National Stockpile and seven states have not purchased any portion of their federally subsidized or unsubsidized antiviral medications to use during a pandemic.⁵⁶ Nevertheless, a viable medical supplies distribution/supply chain industry has developed to support hospitals over the last few years. This medical distribution/supply chain industry can provide sustainable solutions to the fast and coordinated distribution of medical countermeasures.

The Government Accountability Office (GAO) found that efforts of state and local public health agencies to prepare for a bioterrorist attack have improved the nation’s capacity to respond to infectious disease outbreaks and other major public health threats, but gaps in preparedness remain.⁵⁷

The Impact of Uncontrolled Health Care Spending on the NSS

Over the past thirty years, total national spending on health care has more than doubled as a share of GDP. According to Congressional Budget Office’s (CBO) latest projections in its “Long-Term Outlook for Health Care Spending” report, that share will double again by 2035, claiming more than thirty percent of GDP. Thereafter, the CBO projects that health care expenditures will continue to account for a steadily growing share of GDP, reaching more than forty percent by 2050. Federal spending on Medicare and Medicaid, which accounts for four percent of GDP today, is projected to rise to nine percent by 2035 under current law.⁵⁸

The long-term achievement of our NSS heavily depends on the strength of our nation’s economy. Likewise, disciplined federal spending and effective fiscal policies support our

economy's strength. The Federal budget must balance mandatory spending such as health care (i.e. CMS) with government revenues. The USG, mostly through the federal Medicare and Medicaid programs, funds nearly one-half of all US health care spending through budget deficits, higher taxes, or cuts in other federal programs. Uncontrolled large federal spending will eventually weaken our economy. A weakened economy impedes the full achievement of US NSS objectives and the formulation of sound and feasible strategies to pursue them. Left unchecked, current mandatory spending for CMS programs will threaten our economy and national strategic objectives. Without a fiscal cushion, the USG is less able to fund homeland security, natural disaster relief, or military mobilization.

GLOBAL HEALTH CARE

Overview

Global demand for health care services continues to rise at an alarming rate. For example, the World Health Organization (WHO) estimates a chronic shortage of over 4.2 million health workers worldwide of which 2.4 million are doctors, nurses, and midwives.⁵⁹ The shortage of health care professionals is such that fifty-seven countries are now classified as having critical deficiencies. In Sub-Saharan Africa alone, three percent of the world's health workers support eleven percent of the world's population. Worse, this small pool of providers is charged with the task of having to treat over twenty-four percent of the world's disease.⁶⁰

A myriad of national medical structures exists among countries around the world. The majority of health care systems in developed countries make an attempt at providing high-quality medicine at a fair cost. Although the overarching goal of these systems is similar – a health care system that enables a healthy and productive population – the ways and means of accomplishing this objective range from medical structures that are predominately centrally controlled by the government (i.e. “socialized medicine”) to systems where free enterprise is allowed to function within a regulatory framework. The challenge facing all countries is finding the proper balance between government subsidies for care and allowing free-market conditions to drive the health care market.

Comparing United States Health Care on an International Scale

The US spends more on health care than any other nation in the world. As the only industrialized country in the world without a national health care system, the US medical system is frequently scrutinized in terms of outcomes. A frequently cited 2000 report by the WHO ranks the US health care system 37th in the world – implying that America's return on its health care investment is poor when compared to other developed countries.⁶¹ A more thorough analysis of the metrics used to rank countries and a review of alternative “national health care systems” suggests that this assessment is skewed towards more socialized health care systems. For example, within the WHO 2000 report, the US is criticized for “not having a sufficient progressive tax system, not providing all citizens with health insurance, having a general paucity of social welfare programs,” and for adopting Health Savings Accounts.⁶² Similarly, the use of “life expectancy” as a measure of health care performance may relate more to non-medical/

lifestyle factors than to actual health system outcomes. The reality is that when one compares US treatment outcomes for specific diseases [i.e. cancer, Acquired Immune Deficiency Syndrome (AIDS), heart disease] with the results of other countries, the chances of longer-term survival with these diseases are significantly higher for a US patient. For cancer alone, the five year survival for a US patient is the best in world – outperforming countries such as England (who has a national health care system) by over twenty percent for men and almost fifteen percent for women.⁶³

Other favorable results of the US health care system include eighteen of the last twenty-five Nobel Prize winners for medicine; US institutions developing over half of the major medicines used throughout the world over the past twenty years; shorter wait times for care and surgery; better access to technology, such as medical resonance imaging and computed tomography; and in terms of pharmaceuticals, Americans benefitting from the most recent drugs available, whereas in countries such as Germany and Spain, only ten to twenty percent of the population receive the most recent and effective medications.⁶⁴

CHALLENGES

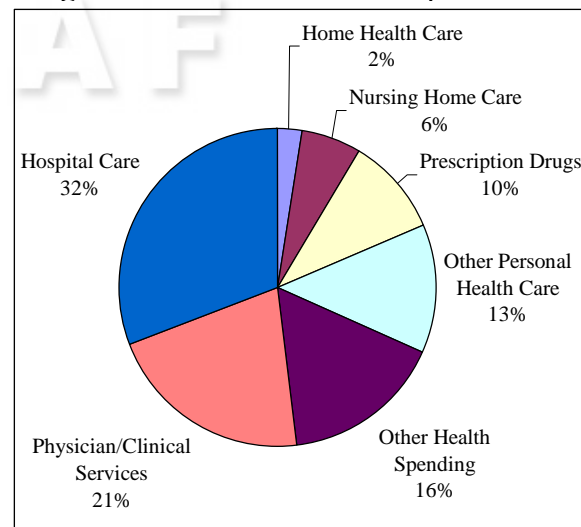
Cost

Health care spending is consuming an increasing share of economic activity and has grown faster than the overall economy in every recent decade.⁶⁵ In 2004, almost half of all health care spending was used to treat just five percent of the population.⁶⁶ Health care spending also varies by factors such as age and sex. Adults aged sixty-five and older have the highest health care spending, averaging \$8,647 per person in 2004.⁶⁷ Since 1970, health care spending has grown at an average annual rate of 9.9 percent or about 2.5 percentage points faster than nominal GDP.⁶⁸ The persistence of this trend suggests systematic differences between health care and other economic sectors, where growth rates are typically more in line with the overall economy.⁶⁹

Most health care spending is for care provided by hospitals and physicians. It encompasses a wide variety of health-related goods and services, from hospital and prescription drug spending to dental services and medical equipment purchases.

As shown in Figure 1, spending on hospital care and physician services makes up just over one-half of health care expenditures. While spending on prescription drugs only accounts for about ten percent of total health expenditures, its rapid growth in the last decade has received considerable public attention.⁷⁰ Private funds pay for about fifty-five percent of total health spending. When health goods and services are used, someone

Figure 1. 2005 Health Care Expenditures



pays for them – either directly or indirectly. Private health insurance accounts for about thirty-six percent of health spending; public programs, including Medicare, Medicaid, SCHIP, DOD, and VHA account for about forty-five percent of health spending.

Aging of America. Over the past century, there have been tremendous increases in longevity in the US and most other developed countries. If these trends continue as they are expected, the expense associated with public programs like Social Security, Medicare, and Medicaid will escalate at a startling rate with the aging of the "baby boomer" generation.⁷¹ In addition to the increasing expenditures, many who live longer are now living with more chronic disease. Living longer doesn't mean living better or healthier, it's simply a statement of chronology.

Organization for Economic Cooperation and Development (OECD) country gains in recent decades in life expectancy, reflecting sharp reductions in mortality rates, can be attributed to a number of factors, including rising living standards and better education, as well as, greater access to quality health services. Other factors, such as better nutrition, sanitation, and housing also played a role, particularly in countries with developing economies.

It is difficult to estimate the relative contribution of the numerous non-medical and medical factors that might affect variations in life expectancy over time and across countries. Higher national income (as measured by GDP per capita) is generally associated with higher life expectancy at birth across OECD countries, although the relationship is less pronounced at higher levels of income.⁷²

Access

Sixty-one percent of employers sponsor health insurance for their employees.⁷³ Recently, there has been erosion in both the proportion of workers covered under employer plans and the adequacy of such coverage, as rising health care costs have made it increasingly difficult for employers to continue offering comprehensive coverage.

Most workers who lose access to employer health insurance have few coverage options. Many turn to the individual insurance market, where coverage is often unaffordable and sometimes unavailable to older adults or people with health problems. For those families who continue to have employer coverage, ever-rising deductibles and other cost-sharing requirements are consuming larger and larger shares of family income, particularly among families with low or moderate incomes.

Outcomes (Quality)

National Health

Chronic diseases, such as cardiovascular disease, diabetes, respiratory disease, and cancer, carry a heavy toll in terms of health care expenditures, as well as quality of life. A recent report by the Milken Institute estimated that "the most common chronic diseases are costing the economy one trillion dollars annually and that much of this cost is avoidable."⁷⁴ The findings of a November 2007 study on chronic diseases, published by Johns Hopkins University, put the

seriousness of the prevalence of chronic conditions in sharp focus.⁷⁵ Some of the key findings of the study, which was based on the 2004 Medical Expenditure Panel Survey, are:

- The number of people with chronic conditions is rapidly increasing: in 2000, 125 million Americans had one or more chronic conditions; this number is projected to increase by more than one percent each year through 2030; between 2000 and 2030 the number of Americans with chronic conditions will increase by forty-six million.
- In 2004, twenty-six percent of Americans had two or more chronic conditions: twenty-three percent had one chronic condition; twelve percent had two chronic conditions; six percent had three; four percent had four; and another four percent suffered from five or more chronic conditions.
- People with chronic conditions accounted for eighty-five percent of all health care spending in 2004.
- Average per capita spending on people with one or more chronic conditions is more than five times greater than spending on people without any chronic conditions.

Almost thirty years ago in 1980, less than half (forty-seven percent) of Americans were overweight and less than fifteen percent were obese – measured by a body-mass index higher than twenty-nine; today, it is estimated that approximately sixty percent of Americans are overweight and more than twenty-seven percent are obese.⁷⁶ The percentage of overweight children and teenagers in the US has more than doubled since 1970.⁷⁷ Recent data shows that ten percent of children ranging from two to five years of age, and greater than fifteen percent of children six to nineteen are overweight.⁷⁸ Obesity places a serious health care burden on society and threatens our ability to build and maintain a healthy, ready, and capable workforce, which is essential to executing a strong NSS.

Obesity is a precursor to many chronic diseases. The most prevalent and directly linked diseases to obesity are high blood pressure, high cholesterol, heart disease, and Type 2 diabetes. Obesity is the most important risk factor for Type 2 diabetes. The good news is that Type 2 diabetes is very sensitive to weight loss and occasionally may disappear when obese people lose weight.⁷⁹ If not taken as a serious health threat, by 2050, an estimated forty-eight million Americans will have Type 2 diabetes as the epidemic continues unabated, according to new federal projections.⁸⁰

Medical errors are also a serious problem in the delivery of health care in the US. On November 29, 1999, the Institute of Medicine (IOM) issued a report entitled, *To Err Is Human: Building a Safer Health System*. The report is disheartening; citing evidence that suggests as many as 98,000 people may die in American hospitals each year as a result of medical errors. The information released by the IOM should not have been a total surprise. Lack of a standardized health care information system and the painfully slow adoption of EMRs throughout the health care system are underlying causes of increased error rates.

Global Health

A multitude of challenges exacerbate the supply and demand imbalance that exists within the global health care industry including: regional turbulence, governmental corruption, environmental changes, immigration and worker migration, education systems (or lack thereof), inequitable distribution of health care resources (workers, technology and infrastructure), poor nutrition and malnutrition, rising costs of energy; population explosions among some of the world's poorest countries, and aging populations and increased life-expectancies among the majority of developed countries. Moreover, as a result of the vast improvements in medicine in developed countries, more people are living longer with diseases than in any time in recorded history. Diseases such as some cancers and HIV/AIDs are now treatable for those who can afford the care. Meanwhile, populations still exist where these illnesses and others once considered controlled or nearly eradicated (such as tuberculosis) kill thousands; left uncontrolled, these diseases may spread and threaten global health. These casualties serve as a constant reminder of how health care access, outcomes (quality), and cost serve as barriers to undeveloped countries who are not benefiting from improvements in medicine or globalization.

POLICY RECOMMENDATIONS

Although the US health care system is capable of providing its citizens the best treatment in the world, that treatment is only available to those who can afford it or otherwise have access. The US lacks a health care package that assures a basic level of care to Americans and provides choice within the system, at an affordable price. In order to advance the state of health care in the US, policy reform must reduce costs, improve access, and seek efficiencies/enhancements in outcomes (quality).

Cost

Fixing the Medicare Money Drain

Medicare has approximately 43.2 million enrollees; about eighty-five percent are aged enrollees and the remaining fifteen percent are disabled⁸¹. An August 2007 CBO report states, "[t]he number of people receiving benefits will rise from fifty million in 2008 to sixty-two million by 2017."⁸² If nothing is done to change current laws and policies, the US will not be able to fulfill its obligation to all Americans who are eligible for the Medicare program. For now, according to this CBO report, outlays for entitlements will remain stable for the next ten years.⁸³

The federal government must control mandatory spending to meet the growing CMS demand for funds. The government should increase the age for Medicare benefits. Congress changed the policy to increase the retirement age for Social Security from age sixty-five to age sixty-seven and should look at changing the Medicare eligibility age to be the same.

Additionally, the government should reduce future CMS benefits for employees with ten or more years before retirement. The American Association of Retired People is advocating for reform and is willing to help.⁸⁴ A final recommendation in this area is to implement means

testing through which individuals or families at tiered income levels pay different premiums for their benefits.

Reforming Tort

As a nation, the US is in dire need of legislative reform regarding the rules of tort – particularly as they relate to limits on medical malpractice awards. Absent such change, physicians may elect to leave the workforce prematurely causing increased labor shortages. Rapidly rising medical malpractice premiums have become an issue of increasing concern for physicians, policy makers, and the general public. Premiums rose by an average of fifteen percent between 2000 and 2002, according to the CBO.⁸⁵ At the heart of the issue is how to make liability coverage more affordable for health care providers while assuring that we have a just system for compensating patients who have been injured as a result of medical malpractice or negligence.⁸⁶

The growth in malpractice premiums has the potential to profoundly affect the health care system. Premiums may influence physicians' decisions to join and leave the labor force, their choice of a medical specialty, and their decision of where to practice, creating the potential for underserved patient populations in certain specialties or geographic areas. Rising malpractice premiums may also encourage physicians to practice "defensive medicine," performing more tests and procedures than necessary in order to reduce exposure to lawsuits.⁸⁷

Federal policy with standards to protect doctors and patients is needed to get costs, fear, and defensive medical cost overruns under control. Patients should have confidence in their doctors, but doctors should also have confidence that they will not lose their practice when making reasoned medical decisions.

Access

Insuring Americans

Some form of insurance for all is essential to ensuring equitable access to health care in the US. One means of providing insurance for all is via a health care voucher program in which all American citizens and legal residents receive a voucher to acquire health care coverage based on established standard benefits, such as the standard benefits offered through the Federal Employees Health Benefits program. All would be enrolled, voluntarily or automatically, in a health plan. Moreover, in order to take part in this program, private health insurance companies and health plans would have to qualify for the program, agree to provide the set benefits for the voucher's value, and consent to accept all applicants. There would be no charge to patients for standard benefits, but patients would be charged for benefits outside the scope of the voucher.

Voucher holders would have a choice of health programs or plans funded through a value-added tax (VAT) solely committed to this program. New enrollments in SCHIP, Medicare, Medicaid, and other public health programs would be curtailed and current participants will have the option of enrolling in the voucher program or remaining in their respective program. Viewed as a true universal health care insurance program, the voucher system would provide total access and choice for all individuals, eliminating the restrictive requirements that sometimes prevent

individuals from obtaining health insurance. Furthermore, it would generate competition between health insurers and health plans, which tends to provide greater efficiencies. The voucher system would allow “market mechanisms – competition – to foster quality and efficiency in health plans and in delivery of services” by hospitals and physicians.⁸⁸

Another option for providing insurance to a greater number of Americans is through a Health Savings Account (HSA) or some type of medical expenses fund.⁸⁹ HSAs are funded with pre-tax dollars, thus providing an incentive to contribute to them. There is already legislation on the books that authorizes HSA's and employers can currently contribute to these accounts if their employees have them. However, under current legislation workers can only have an HSA if they are already covered by a high-deductible health plan. This requirement should be changed, allowing more Americans to use pre-tax dollars to purchase health care insurance, just like employers can now do. This type of program would also allow Americans not comfortable with a high deductible plan to choose one with lower deductibles, higher co-payments, or any other available permutation available to them, as long as basic coverage requirements are met. Incentives to obtain annual preventive services such as immunizations and screening tests can be envisioned as well, whereby additional dollars are added to the accounts for those obtaining these well-proven interventions.

Incentivizing Health Care Education Choice

In order to meet growing demand, the US must educate and graduate more health care workers and retain those currently practicing in the industry. With respect to education, we need a multi-faceted approach to increase interest and opportunities in health care careers among students. Special science, technology, engineering, and math (STEM) classes and tracks for children who think they might want to be doctors or nurses should be incorporated into our basic education. This approach would produce a more diverse workforce; encourage career changers; facilitate government oversight of health care admission caps; and potentially reduce the time it takes to train a doctor. Providing federally-funded financial support (grants and scholarships) to health care students and incentives to attract more health care educators has the potential to increase the health care labor pool and improve the relations between government, health care training institutions, and health care provider networks. In addition, federal funding should create incentives (for health care providers to work in underserved areas).

From a health care workforce perspective, the federal government's role should be one that helps facilitate the sharing of best human resource management (HRM) practices and that regulates worker conditions in a manner that maintains the balance between quality health care and efficient use of the workforce. Areas for increased oversight include establishing patient to health care provider ratios, establishing a federal standard that limits health care provider workloads, and reducing the bureaucracy that exists for global health care workers wishing to obtain a visa and work in the US. In order to facilitate the sharing of best health care HRM practices, the government could fund a process for capturing HRM programs in a manner that is easily shared among health care stakeholders (i.e., a health care HRM information network to share best practices).

For public service, a combination of education incentives and increased benefits may be necessary to lure these specialists towards the health care industry. Many of these workers have

skills that are highly demanded in other industries – adding an additional competitor to the labor market. For example, environmental scientists can work in a multitude of jobs in the chemical and oil industry – where pay, benefits, and opportunities are greater than in the government sector.

Outcomes (Quality)

The government has a clear role to play in securing the health of the nation through sound public health policies. At the national level, among the most critical are policies to reduce the incidence of chronic diseases and to improve the quality of medical care. With respect to these areas we believe that the national priorities should be disease prevention, reduction of medical errors, and expanded use of electronic medical records. At the international level, the US government must be an active participant in the fight against global health threats and efforts to improve overall global health both through national preparedness and cooperation with the international community.

Improving the Nation's Health

Preventing Chronic Diseases. National public health policy with regard to prevention of chronic diseases should encompass expanded prevention intervention programs, public information campaigns, reduced environmental risk factors, incentives to encourage healthier lifestyles, and coordination with the private sector on work place programs.

Given the wide disparities that exist among states with regard to chronic disease, chronic disease prevention programs should continue to be implemented at the state, local, and community level. At the national level, the USG should develop guidelines with respect to the most effective prevention protocols and require that state and local health programs that use federal funds use these guidelines for addressing the particular needs of their area. The USG should also consider regulatory measures to reduce environmental risk factors, which could include a nationwide ban on smoking in public places, higher cigarette taxes, or restrictions on the sale of high calorie, trans-fat laden foods.

Government, insurers, employers, providers, and communities must work together to realign the health care system to motivate people to stay healthy, reward providers for preventing disease and limiting complications, and encourage innovation of new and better treatments.⁹⁰ The government should consider providing tax incentives to companies that establish effective wellness programs for their employees and work with businesses and insurers to create incentives, such as reduced premiums for healthy lifestyles. The USG should also encourage insurers to provide greater coverage for preventive medical procedures, perhaps even consider subsidizing expenditures for these procedures.

Reducing Medical Errors and Expanding the Use of Electronic Medical Records. Medication errors are among the most serious and frequent medical errors. The failure to use health IT as an integral part of US medical care and the resulting poor communication among health care providers too often result in treatment that is unnecessary, inappropriate, duplicative, or ineffective, or, worse, counterproductive and even dangerous. While not the complete

solution, wider implementation of medication error prevention systems, such as pharmacy robotics, in combination with a mandated standardized EMR standard, such as Health Level Seven,⁹¹ would go a long way toward providing the technical solutions necessary to improve the quality of US health care through increased patient safety and reduced medical errors.

While not all of medication errors occur in a hospital setting, prevention of hospital medication errors would yield huge benefits in increased patient safety. Four specific modalities are key components in medication error prevention: computerized physician order entry (CPOE), intravenous administration “smart pumps,” computerized adverse drug event monitoring, and barcode point of care (BPOC) medication safety systems.⁹² A March 2007 report stated that only twenty-seven percent of hospitals have a CPOE system in operation for medication orders and that only fourteen percent of hospitals have BPOC systems fully implemented.⁹³

A national program to expand the use of EMRs and ensure compatibility among different systems – currently, there are over thirty different EMR programs in use in the US – would greatly improve health care outcomes and help control health care expenditures.⁹⁴ Also, the computerization of health records will facilitate early warning of widespread health care threats and the development of new drugs, devices, treatment protocols, and preventive measures to contain those threats, including bioterrorism, more expeditiously than can possibly be done using paper records.

President Bush has set a laudable goal of adoption of EMRs throughout the US health care system by 2014, but that goal is unlikely to be achieved unless more federal funds are directed at providing incentives and financial assistance to providers. The federal government must also establish strong standards and enforcement measures for security of EMRs. Among the tools the government should use to encourage adoption of EMRS are tax incentives to hospitals and clinics, and private practices who are early adopters. To ensure interoperability among systems, the government should also establish an EMR software system accreditation program.⁹⁵

Protecting the Nation from Global Health Threats

National Preparedness. In order to improve the nation’s capability to respond to a global health threat, such as pandemic outbreak or biological attack, the National Preparedness Guidelines should be adopted. It should be the standard against which all levels of government and the private sector are evaluated as it relates to health care emergency preparedness. This action would provide all levels of government and the private sector much needed specificity for capability-based planning, staffing, organizing, equipping, training, and exercising for emergency preparedness.

Once standard preparedness guidelines are adopted, a dependable funding stream will be necessary to attain and sustain program goals. Global health threats can arise at any time – they do not respect economic downturns or budget shortfalls. A sustained level of emergency preparedness, regardless of economic conditions or budget pressures, must be a national priority. State and local governments will not be able to provide sufficient funding to maintain these programs so it will fall upon the federal government to provide and maintain sufficient funding for each level of government and the private sector to meet health care emergency preparedness goals.

International Cooperation. In this increasingly globalized world, where “an outbreak or epidemic in any one part of the world is only a few hours away from becoming an imminent threat somewhere else,” the US must partner with other countries to redouble efforts to prevent and respond collectively to global health threats, whether epidemic-prone diseases, food-borne illnesses, toxic chemical or nuclear accidents, or environmental disasters.⁹⁶ An essential element in the development of a core level of surveillance and response capacity in all countries is world-wide compliance with the WHO’s International Health Regulations (IHR). However, many developing countries are woefully unprepared to detect or prevent the spread of epidemics across borders and lack the capacity to fully implement the IHR. These countries also suffer from the failure of the market to produce drugs to prevent or treat so-called “orphan diseases” that are devastating these countries’ populations and holding back their development. It is in the interest of all countries to provide the expertise and resources needed to build the health capacity of these less developing countries and fund the research needed to wipe out orphan diseases. It was clear, however, from our visits to international organizations that there is a lack of donor coordination with regard to global health threats and orphan diseases.

The US should take a leading role in developing a new, coordinated paradigm for better donor coordination to advance global health and respond to global health threats. The Global Fund, which funds programs throughout the world to combat HIV/AIDS, tuberculosis, malaria, and neglected tropical disease, has had marked success in achieving a unified approach by the donor community. It involves governments (donors and afflicted), civil society, and the private sector (the Gates Foundation). With its unified goals, approaches, and strategies, this is an excellent model to follow. There is also a need to develop incentives to encourage developing countries to invest in their health care systems.

The Millennium Challenge Corporation (MCC) is a great example of how an incentive fund can encourage governments to adopt and implement better policies and programs. The MCC provides aid to countries that create institutions for good governance, improve capacity, and reduce corruption. A similar aid program could be created to provide incentives to countries committed to improving public health capacity and building institutions of reliable governance that can work on preventing and containing diseases.⁹⁷

Conclusion

This report has examined the current state of US health care and proposed recommendations that if implemented, would be the first steps down the long road to reform. Some of our recommendations focus on very complex issues, such as reducing overall spending and ensuring access to basic health care for every American. Other recommendations focus on less complex issues such as incentives to attract more people to health care careers and reducing medical errors. Most of our recommendations focus on improving and securing the health of Americans, such as by reducing obesity and encouraging wider use of EMRs, but we also include recommendations such as greater donor coordination to improve health standards in developing countries and to prevent and contain global health threats. Our recommendations also address issues such as the need for tort reform and the rising incidence of chronic disease.

Overall, the recommendations represent our assessment of priority actions we believe are necessary to secure the nation’s health, but are by no means exhaustive. We recognize that the

health care industry is among the largest and most complex of industries and offer our recommendations not as *the* solution, but as a possible way forward to begin to address the challenges and opportunities facing the US health care industry. Many solutions at many levels within the intricately entangled web of people, products, services, and regulations that constitute the health care industry will be needed to find the appropriate balance of cost, access, and outcomes to ensure that the US health care system delivers optimal value and that the US continues to be at the forefront of efforts to improve health conditions throughout the world.



NOTES

AIDS	Acquired Immune Deficiency Syndrome
BPOC	Barcode Point of Care
CBO	Congressional Budget Office
CDC	Centers for Disease Control and Prevention
CMS	Center for Medicare and Medicaid Services
CPOE	Computerized Physician Order Entry
DNA	Deoxyribonucleic Acid
DOD	Department of Defense
FDA	Food and Drug Administration
GAO	Government Accountability Office
GDP	Gross Domestic Product
HHS	Department of Health and Human Services
HRM	Human Resource Management
HSA	Health Savings Accounts
HIV	Human Immunodeficiency Virus
IHR	International Health Regulations
IOM	Institute of Medicine
IT	Information Technology
JCAHO	Joint Commission on Accreditation of Healthcare Organization
MCC	Millennium Challenge Corporation
NSS	National Security Strategy
OECD	Organization for Economic Cooperation and Development
OSHA	Occupational Safety and Health Administration
PHS	Public Health Service
PPO	Preferred Provider Organizations
RN	Registered Nurse
SCHIP	State Children's Health Insurance Program
STEM	Science, Technology, Engineering, and Math
US	United States
USAID	US Agency for International Development
USG	US Government
VHA	Veteran's Health Administration
WHO	World Health Organization

1. National Coalition on Health Care, "Health Insurance Cost," *Facts*,

<http://www.nchc.org/facts/cost.shtml> (accessed May 20, 2008).

2. OECD, "Health at a Glance 2007," *Health*,

http://www.oecd.org/document/11/0,3343,en_2649_37407_16502667_1_1_1_37407,00.html (accessed May 20, 2008).

3. Dr. Bill Dr Rowley, "The Future of US Healthcare: Asking the Right Questions," 2008.

-
4. AFT Healthcare, "Empty Hallways, the Hidden Shortage of Healthcare Workers," <http://www.aft.org/pubs-reports/healthcare/empty-hallways.pdf> (accessed May 20, 2008).
 5. Gerald Anderson, "Chronic Conditions: Making the Case for Ongoing Care," Baltimore, MD: Johns Hopkins University, (2007).
 6. MGH Institute for Health Policy, "A National Survey of Health Record Keeping among Physicians and Group Practices in the United States," George Washington University and RTI.
 7. US Department of Labor, Bureau of Labor Statistics, "Health Care," <http://www.bls.gov/oco/cg/cgs035.htm> (accessed May 20, 2008).
 8. Ibid.
 9. Centers for Disease Control and Prevention, "Vision, Mission, Core Values, and Pledge," *CDC Organization*, <http://www.cdc.gov/about/organization/mission.htm> (accessed May 18, 2008).
 10. FDA, "FDA's Mission Statement," www.fda.gov/opacom/morechoices/mission.html (accessed May 18, 2008).
 11. CMS, "CMS Mission, Vision, and Goals," *About CMS*, <http://www.cms.hhs.gov/MissionVisionGoals/> (accessed May 18, 2008).
 12. NIH, "NIH Mission," *About NIH*, <http://www.nih.gov/about/index.html#mission> (accessed May 18, 2008).
 13. The Joint Commission, "The Joint Commission Mission-Related Commitments, *About Us*," http://www.jointcommission.org/AboutUs/mission_commitments.htm (accessed May 19, 2008).
 14. US Department of Labor, Bureau of Labor Statistics, "Health Care."
 15. CMS, "CMS Mission, Vision, and Goals."
 16. HHS, "Public Health Service," <http://www.os.dhhs.gov/about/opdivs/phs.html> (accessed May 19, 2008). PHS is a part of HHS.
 17. Dr. Ricky J. Richardson, "Healthcare Delivery in the Year 2050," *Pittsburg University Lecture*, <http://www.pitt.edu/~super1/lecture/lec1911/index.htm> (accessed May 19, 2008).
 18. CMS, "CMS Mission, Vision, and Goals."
 19. US Department of Labor, Bureau of Labor Statistics, "Federal Government, Excluding the Postal Service," <http://www.bls.gov/oco/cg/cgs041.htm> (accessed May 20, 2008).
 20. TRICARE Management Activity, "2008 MHS Stakeholders' Report," *Basic Facts of the Military Health System*, <http://www.tricare.mil/stakeholders/statistics.cfm> (accessed May 20, 2008).
 21. Sidath Viranga Panangala, "Veteran's Health Care Issues," *CRS Report for Congress*, (Washington, DC: Congressional Research Service, 2007), <http://us.gallerywatch.com/pipefile.asp?sessionid={F18E2828-D955-4D76-98DC-38DF6367467E}&sid=PHP:US:CRS:RL33993&type=pdf> (accessed March 2, 2008).
 22. Office of Public Health and Service, "U.S. Public Health Service Commissioned Corps," <http://www.usphs.gov/> (accessed May 20, 2008).
 23. ADA. "Information and Technical Assistance on the Americans with Disabilities Act," *ADA Homepage*, <http://www.ada.gov/> (accessed May 20, 2008).
 24. US Department of Labor, "Employee Retirement Income Security Act - ERISA," *Health Plans & Benefits*, <http://www.dol.gov/dol/topic/health-plans/erisa.htm> (accessed May 20, 2008).

-
25. HIPAAAdvisory. "What's HIPAA?" *HIPAA Primer*, <http://www.hipaadvisory.com/REGS/HIPAAprimer.htm> (accessed May 20, 2008).
 26. US Department of Labor, Occupational Safety and Health Administration, "Safety and Health Topics," <http://www.osha.gov/SLTC/index.html> (accessed May 20, 2008).
 27. Medicine.net, "Definition of Food and Drug Administration," <http://www.medterms.com/script/main/art.asp?articlekey=8468> (accessed May 20, 2008).
 28. Centers for Disease Control and Prevention, "Vision, Mission, Core Values, and Pledge."
 29. Office of Public Health and Service, "U.S. Public Health Service Commissioned Corps."
 30. Jim Heskett, "What is the Government's Role in U.S. Healthcare?" *HBS Working Knowledge*, March 2, 2007, <http://hbswk.hbs.edu/item/5645.html> (accessed May 19, 2008).
 31. Dr. Bill Dr Rowley, *The Future of US Healthcare: Asking the Right Questions*, 2008.
 32. National Coalition on Health Care, "Health Insurance Cost."
 33. Ibid.
 34. Ibid.
 35. Ibid.
 36. GlaxoSmithKline, Public Policy Department, "Changing the Debate on Healthcare Costs in the US: The Triple Solution for Lower Costs, Better Quality Healthcare," 2007.
 37. Gail Wilensky and Gen John D. W. Corley, *Task Force on the Future of Military Health Care: Final Report*, December 2007.
 38. Ibid.
 39. Ibid.
 40. Department of Veterans Affairs, "VA Health Care" In *Federal Benefits for Veterans and Dependents* (Washington, DC, 2007), 1-14, http://www1.va.gov/opa/vadocs/fedben_pt1.pdf.
 41. Congressional Budget Office, *A CBO Paper: The Health Care System for Veterans: An Interim Report* (Washington, DC: The Congress of the United States, [December 2007]), http://www.cbo.gov/ftpdocs/88xx/doc8892/12-21-VA_Healthcare.pdf (accessed May 20, 2008).
 42. Agency for Healthcare Research and Quality, *Highlights: Key Themes and Highlights from the National Healthcare Disparities Report* (Rockville, MD, 2007), <http://www.ahrq.gov/qual/nhdr06/highlights/nhdr06high.htm> (accessed May 19, 2008).
 43. Ibid. The word "poor" was undefined.
 44. Rural Assistance Center, "Rural Health Care Workforce Resources," http://www.raconline.org/info_guides/hc_providers/ (accessed May 19, 2008).
 45. Massachusetts Association of Colleges of Nursing (MACN), *The Voice for Baccalaureate and Higher Education in Nursing throughout the Commonwealth of Massachusetts: Ensuring an Educated Nursing Workforce for the Commonwealth*, July 2005, http://www.massnursing.org/MACN_July05.pdf (accessed March 20, 2008).
 46. Jason Gerson and others, *Addressing the Nursing Shortage: Background Brief*. (Menlo Park, CA: The Kaiser Family Foundation, 2008), http://www.kaiseredu.org/topics_im.asp?imID=1&parentID=61&id=138 (accessed May 19, 2008).
 47. Galen Institute, "A Vision for Consumer-Driven Health Care Reform," <http://www.galen.org/content/CGvision.html> (accessed May 20, 2008).
 48. Mark Trumbull, "Burdened by Healthcare Costs, US Businesses Seek A Shift," *Christian Science Monitor* (February 17, 2007), <http://www.csmonitor.com/2007/0213/p01s01-usec.html>

-
49. Dr. Smith, Debroah L. "FMEA: Preventing a Failure Before Any Harm Is Done," *ISixSigma Healthcare* (2008), <http://healthcare.isixsigma.com/library/content/c040317a.asp> (accessed May 19, 2008).
50. Ibid.
51. Center for Counterproliferation Research, *Toward a National Biodefense Strategy: Challenges and Opportunities* (Washington, DC: National Defense University, April 2003).
52. Frida Kuhlau, *Countering Bio-Threats - EU Instruments for Managing Biological Materials, Technology and Knowledge* (Sweden: Stockholm International Peace Research Institute, August 2007), <http://books.sipri.org/files/PP/SIPRIPP19.pdf> (accessed May 19, 2008).
53. Juan A. Cuadrado, "The Role of the Pharmaceutical Industry in the Development & Production of Medical Countermeasures for U. S. National Security," April 2008.
54. Center for Counterproliferation Research, *Toward a National Biodefense Strategy: Challenges and Opportunities*, 25-26. The Strategic National Stockpile, originally known as the National Pharmaceutical Stockpile, was created in 1999 and contains stores of medical countermeasures and other medical supplies for distribution and use in case of national emergency.
55. Ibid.
56. *Health Care Headlines* PT16, no. 2 (2008).
57. Janet Heinrich, *Infectious Disease Outbreaks: Bioterrorism Preparedness Efforts have Improved Public Health Response Capacity, but Gaps Remain* (Washington, DC: Government Accounting Office, April 9, 2003). GAO found workforce shortages and gaps in disease surveillance and laboratory facilities, that regional planning was generally lacking between states, many hospitals lack the capacity to respond to large-scale infectious disease outbreaks and lack adequate equipment, isolation facilities, and staff to treat a large increase in the number of patients that may result.
58. Congressional Budget Office. *Health* (Washington, DC: The Congress of the United States, 2008), <http://www.cbo.gov/publications/collections/health.cfm> (accessed May 19, 2008).
59. World Health Organization, *World Health Report* (Geneva, Switzerland, 2007).
60. Ibid.
61. Ibid.
62. Ibid.
63. Ibid.
64. Ibid.
65. *Health Care Costs -- A Primer: Key Information on Health Care Costs and their Impacts* (Menlo Park, CA: The Kaiser Family Foundation, 2007), <http://www.kff.org/insurance/upload/7670.pdf> (accessed May 19, 2008).
66. Ibid.
67. Ibid.
68. Gail Wilensky, *Task Force on the Future of Military Health Care: Final Report*, 2-3.
69. *Health Care Costs -- A Primer: Key Information on Health Care Costs and their Impacts*, 2007.
70. CMS and the Office of the Assistant Secretary for Planning and Evaluation, *An Overview of the US Health Care System Chart Book* (Washington, DC, January 31, 2007).

-
71. John Q. Trojanowski, M. Kathryn Jedrzejewski and David A. Asch, "Living Longer and Paying the Price?" *Science of Aging Knowledge Environment*, no. 49 (2005), <http://sageke.sciencemag.org/cgi/content/abstract/2005/49/pe38> (accessed May 19, 2008).
72. OECD, "OECD Factbook 2008: Economic, Environmental and Social Statistics," *At a Glance*, <http://fiordiliji.sourceoecd.org/vl=102563/cl=51/nw=1/rpsv/factbook/110101.htm> (accessed May 19, 2008). The President's Fiscal Year (FY) 2009 federal budget request, released in February, includes an estimated \$24.1 billion for domestic and global HIV/AIDS activities. Domestic HIV/AIDS is funded at \$18.2 billion and global at \$5.9 billion. The FY 2009 request represents a 3.6 percent increase (\$844 million) over FY 2008 funding, which totaled \$23.3 billion. Congress will now consider the budget request and is expected to finalize spending levels in late 2008. Federal funding for HIV/AIDS has increased significantly—by almost \$5 billion since FY 2006—over the course of the epidemic, driven by increased funding for global HIV/AIDS and domestic care and treatment programs, which is a reflection of the growing number of people living with HIV/AIDS in the United States.
73. *The Uninsured - A Primer: Key Facts about Americans without Health Insurance*, (Menlo Park, CA: The Kaiser Family Foundation, October 2007), <http://www.kff.org/uninsured/upload/7451-03.pdf> (accessed May 19, 2008).
74. Ross DeVol and Armen Bedroussian, *An Unhealthy America: The Economic Burden of Chronic Disease* (Santa Monica, CA: Milken Institute, 2007), <http://www.milkeninstitute.org/publications/publications.taf?function=detail&ID=38801018&cat=ResRep> (accessed March 21, 2008).
75. Gerald Anderson, "Chronic Conditions: Making the Case for Ongoing Care."
76. Johns Hopkins Medicine, *Diabetes Special Report: Why Obesity Contributes to Type 2 Diabetes* (Baltimore, MD, 2007), <http://www.johnshopkinshealthalerts.com/reports/diabetes/60-1.html> (accessed May 19, 2008).
77. Ibid.
78. Ibid.
79. Ibid.
80. Steven Reinberg, "U.S. Predicts Diabetes Epidemic to Go on Unchecked," *ScoutNews LLC*, June 23, 2007, <http://www.medicinenet.com/script/main/art.asp?articlekey=82062> (accessed May 19, 2008). Along with the disease will come increases in accompanying health problems, such as blindness and hearing loss. Right now, there are 5.5 million people with diabetic retinopathy, and by 2050, that number will increase to 16 million. For the most severe disease, which is the vision-threatening diabetic retinopathy—an eye disease that can cause decreased vision and even blindness—the number will increase from 1.2 million in 2005 to 3.4 million in 2050. The US health-care system will need to take steps to be prepared for this dramatic increase in cases of diabetic retinopathy and all the other complications of Type 2 diabetes.
81. The Congressional Research Service, *CRS Report for Congress - Medicare Program Integrity: Activities to Protect Medicare from Payment Errors, Fraud, and Abuse* (Washington, DC, January 31, 2007).
82. Congressional Budget Office, *The Budget and Economic Outlook: An Update* (Washington, DC: The Congress of the United States, August 2007).
83. Ibid.

-
84. Dr. Edwin Fuelner, *We Need a New Commission to Tackle Entitlement Programs*. Heritage Foundation, March 2007).
85. FindLaw for the Public, "Trend: Medical Malpractice Tort Reform," <http://injury.findlaw.com/medical-malpractice/medical-malpractice-tort-reform.html> (accessed May 19, 2008).
86. Ibid.
87. National Bureau of Economic Research, "Do Medical Malpractice Costs Affect the Delivery of Health Care?" <http://www.nber.org/aginghealth/fall04/w10709.html> (accessed May 19, 2008).
88. Emanuel J. Ezekiel and Victor R. Fuchs, *A Comprehensive Cure: Universal Health Care Vouchers*. The Brookings Institute, http://www.brookings.edu/papers/2007/07useconomics_emanuel.aspx (accessed May 19, 2008).
89. Michael F. Cannon and Michael D. Tanner, *Healthy Competition - What's Holding Back Health Care and how to Free It* (Washington, DC: CATO Institute, 2007), 1-189.
90. GlaxoSmithKline Public Policy Department, 2007.
91. Health Level Seven, "What is HL7?" HL7.org, <http://www.hl7.org/> (accessed May 21, 2008). "Health Level Seven is one of several American National Standards Institute (ANSI) – accredited Standards Developing Organizations (SDOs) operating in the healthcare arena. Most SDOs produce standards (sometimes called specifications or protocols) for a particular healthcare domain such as pharmacy, medical devices, imaging or insurance (claims processing) transactions. Health Level Seven's domain is clinical and administrative data." Currently, this is a voluntary standard.
92. David Swenson, "Point-of-Care Medication Error Prevention: Best Practices in Action," *Patient Safety & Quality Healthcare* (May/June, 2007).
93. Ibid.
94. MRInstitute, "EMR Compare: Electronic Medical Record EMR and Electronic Health Record Systems: Free Health IT Comparison by Price, Cost, Functions," <http://www.medrecinst.com/emrcompare/index.html> (accessed May 20, 2008).
95. Michael Milne, "HIPAA in a Nutshell – Guidelines for EMR and Paper Medical Records Compliance," <http://ezinearticles.com/?HIPAA-in-a-Nutshell---Guidelines-for-EMR-and-Paper-Medical-Records-Compliance&id=156737> (accessed May 17, 2008).
96. World Health Organization, *World Health Report*.
97. World Health Organization, *World Health Report*.

BIBLIOGRAPHY

- ADA. "Information and Technical Assistance on the Americans with Disabilities Act." *ADA Home Page*. <http://www.ada.gov/> (accessed May 20, 2008).
- AFT Healthcare. "Empty Hallways, the Hidden Shortage of Healthcare Workers." <http://www.aft.org/pubs-reports/healthcare/empty-hallways.pdf> (accessed May 20, 2008).
- Agency for Healthcare Research and Quality. *Highlights: Key Themes and Highlights from the National Healthcare Disparities Report*. Rockville, MD, 2007, <http://www.ahrq.gov/qual/nhdr06/highlights/nhdr06high.htm> (accessed May 19, 2008).
- Anderson, Gerard. "Chronic Conditions: Making the Case for Ongoing Care." Baltimore: Johns Hopkins University (2007).
- Cannon, Michael F. and Michael D. Tanner. *Healthy Competition - What's Holding Back Health Care and how to Free It*. Washington, DC: CATO Institute, 2007.
- Centers for Disease Control and Prevention. "Vision, Mission, Core Values, and Pledge." *CDC Organization*, <http://www.cdc.gov/about/organization/mission.htm> (accessed May 18, 2008).
- Center for Counterproliferation Research. *Toward a National Biodefense Strategy: Challenges and Opportunities*. Washington, DC: National Defense University, April 2003.
- CMS. "CMS Mission, Vision, and Goals." *About CMS*. <http://www.cms.hhs.gov/MissionVisionGoals/> (accessed May 18, 2008).
- CMS and the Office of the Assistant Secretary for Planning and Evaluation. *An Overview of the US Health Care System Chart Book*. Washington, DC. January 31, 2007.
- Congressional Budget Office. *The Budget and Economic Outlook: An Update*. Washington, DC: The Congress of the United States, August 2007.
- Congressional Budget Office. *A CBO Paper: The Health Care System for Veterans: An Interim Report*. Washington, DC: The Congress of the United States, December 2007.
- Congressional Budget Office. *Health*. Washington, DC: The Congress of the United States, 2008, <http://www.cbo.gov/publications/collections/health.cfm> (accessed May 19, 2008).
- The Congressional Research Service. *CRS Report for Congress - Medicare Program Integrity: Activities to Protect Medicare from Payment Errors, Fraud, and Abuse*. Washington, DC January 31, 2007.

Cuadrado, Juan A. "The Role of the Pharmaceutical Industry in the Development & Production of Medical Countermeasures for U. S. National Security." April 2008.

Department of Veterans Affairs. "VA Health Care." Chap. Chapter 1, In *Federal Benefits for Veterans and Dependents*, 1-14. Washington, DC, 2007,
http://www1.va.gov/opa/vadocs/fedben_pt1.pdf.

DeVol, Ross and Armen Bedroussian, *An Unhealthy America: The Economic Burden of Chronic Disease* (Santa Monica, CA: Milken Institute, [2007]), <http://www.milkeninstitute.org/publications/publications.taf?function=detail&ID=38801018&cat=ResRep> (accessed March 21, 2008).

Ezekiel, Emanuel J. and Victor R. Fuchs. *A Comprehensive Cure: Universal Health Care Vouchers*. The Brookings Institute. http://www.brookings.edu/papers/2007/07useconomics_emanuel.aspx (accessed May 19, 2008).

FindLaw for the Public. "Trend: Medical Malpractice Tort Reform."
<http://injury.findlaw.com/medical-malpractice/medical-malpractice-tort-reform.html>
(accessed May 19, 2008).

FDA. "FDA's Mission Statement." www.fda.gov/opacom/morechoices/mission.html (accessed May 18, 2008).

Fuelner, Edwin Dr. *We Need a New Commission to Tackle Entitlement Programs*. Heritage Foundation, March 2007.

Galen Institute. "A Vision for Consumer-Driven Health Care Reform."
<http://www.galen.org/content/CGvision.html> (accessed May 20, 2008).

Gerson, Jason, Thomas Oliver, Jane An, Carolina Gutiérrez, and Usha Ranji. *Addressing the Nursing Shortage: Background Brief*. Menlo Park, CA: The Kaiser Family Foundation, 2008, http://www.kaiseredu.org/topics_im.asp?imID=1&parentID=61&id=138 (accessed May 19, 2008).

GlaxoSmithKline Public Policy Department. "Changing the Debate on Healthcare Costs in the US: The Triple Solution for Lower Costs, Better Quality Healthcare," 2007.

Health Care Costs -- A Primer: Key Information on Health Care Costs and their Impacts. Menlo Park, CA: The Kaiser Family Foundation, 2007.

Health Care Headlines, PT16, no. 2 (February 2008): May 20, 2008.

Health Level Seven. "What is HL7?" HL7.org, <http://www.hl7.org/> (accessed May 21, 2008).

Heinrich, Janet. *Infectious Disease Outbreaks: Bioterrorism Preparedness Efforts have Improved Public Health Response Capacity, but Gaps Remain*. Washington, DC: Government Accounting Office, April 9, 2003.

Heskett, Jim. "What is the Government's Role in U.S. Healthcare?" *HBS Working Knowledge*, March 2, 2007, <http://hbswk.hbs.edu/item/5645.html> (accessed May 19, 2008).

HHS. "Public Health Service." <http://www.os.dhhs.gov/about/opdivs/phs.html> (accessed May 19, 2008).

HIPAAAdvisory. "What's HIPAA?" *HIPAA Primer*, <http://www.hipaadvisory.com/REGS/HIPAAprimer.htm> (accessed May 20, 2008).

HIV/AIDS Policy Fact Sheet. Menlo Park, CA: The Kaiser Family Foundation, April 2008.

Johns Hopkins Medicine. *Diabetes Special Report: Why Obesity Contributes to Type 2 Diabetes*. Baltimore, MD, 2007. <http://www.johnshopkinshealthalerts.com/reports/diabetes/60-1.html> (accessed May 19, 2008).

The Joint Commission. "The Joint Commission Mission-Related Commitments. *About Us*." http://www.jointcommission.org/AboutUs/mission_commitments.htm (accessed May 19, 2008).

Kuhlau, Frida. *Countering Bio-Threats - EU Instruments for Managing Biological Materials, Technology and Knowledge*. Sweden: Stockholm International Peace Research Institute, August 2007.

Massachusetts Association of Colleges of Nursing (MACN). *The Voice for Baccalaureate and Higher Education in Nursing throughout the Commonwealth of Massachusetts: Ensuring an Educated Nursing Workforce for the Commonwealth*. July 2005.

Medicine.net. "Definition of Food and Drug Administration." <http://www.medterms.com/script/main/art.asp?articlekey=8468> (accessed May 20, 2008).

MGH Institute for Health Policy. "A National Survey of Health Record Keeping among Physicians and Group Practices in the United States." George Washington University and RTI.

Milne, Michael. *HIPAA in a Nutshell – Guidelines for EMR and Paper Medical Records Compliance*. <http://ezinearticles.com/> (accessed May 17, 2008).

MRInstitute. *EMR Compare: Electronic Medical Record EMR and Electronic Health Record Systems: Free Health IT Comparison by Price, Cost, and Functions.*
<http://www.medrecinst.com/emrcompare/index.html> (accessed May 20, 2008).

National Bureau of Economic Research. "Do Medical Malpractice Costs Affect the Delivery of Health Care?" <http://www.nber.org/aginghealth/fall04/w10709.html> (accessed May 19, 2008).

National Coalition on Health Care. "Health Insurance Cost." *Facts.*
<http://www.nchc.org/facts/cost.shtml> (accessed May 20, 2008).

NIH. "NIH Mission." *About NIH.* <http://www.nih.gov/about/index.html#mission> (accessed May 18, 2008).

OECD. "Health at a Glance 2007." *Health.* <http://www.oecd.org/health/healthataglace.html> (accessed May 20, 2008).

OECD. "OECD Factbook 2008: Economic, Environmental and Social Statistics." *At a Glance.*,
<http://fiordiliji.sourceoecd.org/vl=102563/cl=51/nw=1/rpsv/factbook/110101.htm> (accessed May 19, 2008).

Panangala, Sidath Viranga. "Veteran's Health Care Issues." *CRS Report for Congress.*
Washington, DC: Congressional Research Service, 2007, <http://us.gallerywatch.com/pipeline.asp?sessionid={F18E2828-D955-4D76-98DC-38DF6367467E}&sid=PHP:US:CRS:RL33993&type=pdf> (accessed March 2, 2008).

Office of Public Health and Service. "U.S. Public Health Service Commissioned Corps."
<http://www.usphs.gov/> (accessed May 20, 2008).

Reinberg, Steven. "U.S. Predicts Diabetes Epidemic to Go on Unchecked." *ScoutNews LLC*, June 23, 2007.

Richardson, Ricky J., Dr. "Healthcare Delivery in the Year 2050." *Pittsburg University Lecture.*
<http://www.pitt.edu/~super1/lecture/lec1911/index.htm> (accessed May 19, 2008).

Rowley, Bill Dr. "The Future of US Healthcare: Asking the Right Questions." Presented to the Industrial College of the Armed Forces Health Care Industry Study. 2008.

Rural assistance Center. "Rural Health Care Workforce Resources."
http://www.raconline.org/info_guides/hc_providers/ (accessed May 19, 2008).

-
- Smith, Debroah L., Dr. "FMEA: Preventing a Failure before any Harm is done." *ISixSigma Healthcare* (2008). <http://healthcare.isixsigma.com/library/content/c040317a.asp> (accessed May 19, 2008).
- Swenson, David. "Point-of-Care Medication Error Prevention: Best Practices in Action." *Patient Safety & Quality Healthcare* (May/June, 2007).
- TRICARE Management Activity. "2008 MHS Stakeholders' Report." *Basic Facts of the Military Health System*. <http://www.tricare.mil/stakeholders/statistics.cfm> (accessed May 20, 2008).
- Trojanowski, John Q., M. Kathryn Jedrzejewski, and David A. Asch. "Living Longer and Paying the Price?" *Science of Aging Knowledge Environment*, no. 49 (December 7, 2005): 38, <http://sageke.sciencemag.org/cgi/content/abstract/2005/49/pe38> (accessed May 19, 2008).
- Trumbull, Mark. "Burdened by Healthcare Costs, US Businesses Seek A Shift." *Christian Science Monitor* (February 17, 2007), <http://www.csmonitor.com/2007/0213/p01s01-usec.html> (accessed May 19, 2008).
- US Department of Labor. "Employee Retirement Income Security Act - ERISA." *Health Plans & Benefits*. <http://www.dol.gov/dol/topic/health-plans/erisa.htm> (accessed May 20, 2008).
- US Department of Labor, Bureau of Labor Statistics. "Federal Government, Excluding the Postal Service." <http://www.bls.gov/oco/cg/cgs041.htm> (accessed May 20, 2008).
- US Department of Labor, Bureau of Labor Statistics. "Health Care." <http://www.bls.gov/oco/cg/cgs035.htm> (accessed May 20, 2008).
- US Department of Labor, Occupational Safety and Health Administration. "Safety and Health Topics." <http://www.osha.gov/SLTC/index.html> (accessed May 20, 2008). 8).
- The Uninsured - A Primer: Key Facts About Americans without Health Insurance*. The Kaiser Family Foundation (October 2007), <http://www.kff.org/uninsured/upload/7451-03.pdf> (accessed May 19, 2008).
- Wilensky, Gail and Gen John D. W. Corley. *Task Force on the Future of Military Health Care: Final Report*. December 2007.
- World Health Organization. *World Health Report*. Geneva, Switzerland, 2007.